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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,249

04/18/2006

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EXAMINER

MCPHERSON, JOHN A

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

02/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,249	Applicant(s) KUBOTA ET AL.	
	Examiner John A. McPherson	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/06, 5/06, 2/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1 380 423 [cited in the Information Disclosure Statement filed 4/18/06] (EP '423) in view of JP 2001-179990 [cited in the Information Disclosure Statement filed 4/18/06] (JP '990).

EP '423 discloses a method for producing a liquid discharge head comprising the steps of forming a mold pattern with a removable resin in a portion where a liquid flow path is to be formed on a substrate having a liquid discharge energy generating element; coating and hardening a covering resin layer on the substrate so as to cover the mold pattern; and removing by dissolution the mold pattern thereby forming a liquid flow path having a hollow structure, wherein the material for the covering resin layer which forms a liquid flow path structure comprises an epoxy resin and an onium salt generating a cation, and the removable resin is exemplified as a photodegradable positive-working resist comprising a methacrylic anhydride/methyl methacrylate copolymer with a monomer composition ratio of 10/90 and a weight-average molecular weight of 28,000. See paragraphs [0012], [0022], [0042] and [0084]; and Figures 5-12.

However, JP '423 does not disclose including an inhibitor of cationic polymerization in the covering resin layer.

JP '990 discloses a method for manufacturing an ink jet recording head comprising coating a substrate provided with ejection pressure generating elements and a solid layer occupying at least a part serving as a channel with a nozzle forming member, wherein the nozzle forming member comprises an epoxy resin, a cationic initiator and a basic substance, for example an amine (corresponding to the inhibitor of the present invention), so as to reduce development residue. See the abstracts; paragraphs [0010], [0014], [0017], [0034], [0043], [0045], [0076] and [0077] of the computer-generated translation enclosed with this Office Action; and Figures 1-6.

It would have been obvious to one skilled in the requisite art to include a basic substance, for example an amine, as taught by JP '990, in the covering resin layer utilized in the method of EP '423 because it is taught that adding an amine to a nozzle forming member comprising an epoxy resin and a cationic initiator reduces development residue produced through pattern exposure of ink ejecting nozzles.

2. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1 380 425 [cited in the Information Disclosure Statement filed 4/18/06] (EP '425) in view of JP 2001-179990 [cited in the Information Disclosure Statement filed 4/18/06] (JP '990).

EP '425 discloses a process of forming a first positive photoresist layer on a substrate including an ink discharge pressure generating element; coating a second positive resist layer; patterning the second positive resist layer to form a second flow

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path pattern; patterning the first positive resist layer to form a first flow path pattern; coating a photosensitive resin composition to form a liquid flow path forming material; patterning an ink discharge port in the liquid flow path forming material; and removing the flow path patterns. See paragraphs [0109]-[0121]. Additionally, EP '425 discloses materials useable as the soluble resist layers include polymethylisopropenylketone and a copolymer of anhydrous methacrylate/methyl methacrylate, exemplified as having a monomer composition ratio of 10/90 and a weight average molecular weight of 28,000. See paragraphs [0033], [0038], [0105]-[0108] and [0122]; and Figures 1A-G, 2A-D, 9A, 10-18 and 21A. Furthermore, EP '425 discloses the liquid flow path forming material comprises an onium salt which generates cations and an epoxy resin. See paragraph [0061]. However, EP '425 does not disclose providing the liquid flow path forming material with an inhibitor of cationic polymerization.

JP '990 discloses a method for manufacturing an ink jet recording head comprising coating a substrate provided with ejection pressure generating elements and a solid layer occupying at least a part serving as a channel with a nozzle forming member, wherein the nozzle forming member comprises an epoxy resin, a cationic initiator and a basic substance, for example an amine (corresponding to the inhibitor of the present invention), so as to reduce development residue. See the abstracts; paragraphs [0010], [0014], [0017], [0034], [0043], [0045], [0076] and [0077] of the computer-generated translation enclosed with this Office Action; and Figures 1-6.

It would have been obvious to one skilled in the requisite art to include a basic substance, for example an amine, as taught by JP '990, in the liquid flow path forming

material in the method of EP '425 because it is taught that adding an amine to a nozzle forming member comprising an epoxy resin and a cationic initiator reduces development residue produced through pattern exposure of ink ejecting nozzles.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2001-179990 [cited in the Information Disclosure Statement filed 4/18/06] (JP '990).

JP '990 discloses an ink jet recording head comprising a substrate provided with ejection pressure generating elements; a channel; and a nozzle forming member, wherein the nozzle forming member comprises an epoxy resin, a cationic initiator and a basic substance, for example an amine (corresponding to the inhibitor of the present invention), whereby a development residue is prevented from being formed in an ink passage See the abstracts; paragraphs [0010], [0014], [0017], [0034], [0043], [0045],

[0076] and [0077] of the computer-generated translation enclosed with this Office Action; and Figures 1-6.

Although the ink jet recording head of JP '990 is manufactured by a different method than the liquid discharge head of the presently claimed invention, specifically the steps of forming and removing a solid layer to form the channel (i.e. flow path) of JP '990 do not utilize a copolymer of methacrylic anhydride and methacrylate ester, the product of the prior art appears to be substantially identical to the product of the present invention because both ink jet heads comprise a nozzle forming member having the same composition, whereby the ink passages are free of development residue.

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend upon its method of production. If the product in the product-by-process claim is the same as of obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process. See MPEP 2113.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. McPherson whose telephone number is (571) 272-1386. The examiner can normally be reached on Monday through Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John A. McPherson/
Primary Examiner, Art Unit 1795

JAM
2/18/08